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BY:

Kimberly Dwyer

Date:

March 30, 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of:
Haruo Kodama et al.

Conf. No.: 2837

Appln. No.: 09/652,090

Filing Date: August 31, 2000

Title: HYDRAULIC DRIVE APPARATUS

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Group Art Unit:

Examiner:

Attorney Docket No.:

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Frank D. Lopez

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REQUEST FOR RECONSIDERATION

In response to the Office Action mailed September 30, 2003 (Paper No. 18) by the Examiner in charge of the above-identified application, Applicants respectfully request reconsideration of the rejection of claims 1-5 and 37-39, without amendment. Claims 1-5 and 37-39 are currently pending in the application.

This response is being timely submitted by March 30, 2004 in view of the simultaneous submission of a 3-month Petition for Extension of Time.

The undersigned would like to thank the Examiner for the courtesies extended during the telephone interviews on March 25 and 29, 2004. The arguments presented during the interviews are summarized below with respect to each of the recited rejections.

The Examiner has rejected claims 1-5 and 37-39 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the origin of the art that the inventors, at the time of the application was filed, had possession of the claimed invention and/or in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. During the telephone interview, it was clarified that the supply pressure is one variable that is used to determine the level of current applied to the electromagnetic relief valve 46. The Examiner takes the position that if the supply pressure is an input variable, the specification is not enabling to one of ordinary skill in the art, since it is not clear that a closed feedback loop is used to control the current supplied to the electromagnetic relief valve 46. Applicants respectfully traverse this rejection.

In determining whether an application sets forth an enabling disclosure, the Examiner must determine whether one reasonably skilled in the art, could make and use the invention from the disclosure in the application coupled with information known in the art, without undue experimentation. U.S. v. Telectronics, Inc., 8 U.S.P.Q.2d 1217, 1223 (Fed. Cir. 1988), cert. denied, 490 U.S. 1046 (1989). "The determination of what constitutes undue experimentation in a given case requires the application of a standard of reasonableness, having due regard for the nature of the invention and the state of the art." In re Wands, 8 U.S.P.Q.2d 1400, 1404 (Fed. Cir. 1988). "The test is not merely quantitative, since a considerable amount of experimentation is possible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed." Id.

It is respectfully submitted that one reasonably skilled in the art, could make and use the hydraulic drive apparatus of the present invention from the disclosure in application coupled with information known in the art, without undue experimentation. Here, the structure and operation of the hydraulic drive apparatus is completely set forth in the specification, except for specific details of the control parameters which control the current applied to the electromagnetic relief valve 46 in response to the pressure detected at the outlet of the hydraulic pump 42 and the pressure at the hydraulic motor 43. The Examiner contends that it is unclear from the specification how the supplying-oil pressure signal output from the pressure gauge 49 is used to control the current applied to the electromagnetic relief valve 47.

As discussed in the paragraph bridging pages 47 and 48 of the specification, the oil pressure control circuit 23B receives a supplying-oil pressure signal output from the pressure gauge 49 and drive oil pressure signals output from the pressure gauges 47 and 48. The oil pressure control circuit 23B feeds current to the electromagnetic relief valve to 46 to vary a set pressure of the electromagnetic relief valve 46 to thereby vary a set pressure of the main relief valve 45. Sequentially, the oil pressure control circuit 23B executes such a control that the pressure of the working oil supplied from the hydraulic pump 42 is higher, by a predetermined pressure, than the pressure of the working oil for driving and rotating the hydraulic motor 43.

As stated at page 54, lines 6 to 9, the oil pressure control circuit 23B is able to vary the pressure of working oil supplied from hydraulic pump to the directional control valve 25 by varying the current fed to the electromagnetic relief valve 46. The oil pressure control circuit 23B receives a supplying-oil pressure signal from the pressure gauge 49, and drive oil pressure signals from the higher one of the pressure gauges 47 and 48. By using the higher one of the drive oil pressure signals 46 and 48 and the supplying-oil pressure signal of the pressure gauge 49, the oil pressure control circuit 23B determines the current to be fed to the electromagnetic relief valve 46 so that the pressure of the working oil received from the hydraulic pump 42 is higher than the pressure of the working oil for driving and rotating the hydraulic motor 43 by 20 kg/cm² at maximum. See page 55, lines 1-12. This process is repeated constantly until the pressure of the working oil supplied from the hydraulic pump 42 is controlled to be higher by a maximum pressure of 20 kg/cm² than the pressure of the working oil for driving and rotating the hydraulic motor 43. See page 56, lines 3-7.

It is respectfully submitted that one of ordinary skill in the art, reading the foregoing would understand that the electromagnetic current applied to the electromagnetic relief valve 46 is controlled by a closed loop feedback system which senses the pressure at the hydraulic pump 42 and the hydraulic motor 43 and then controls the pressure at the hydraulic pump 42 to be greater by a maximum pressure of 20 kg/cm² than the pressure of the working oil for driving and rotating the hydraulic motor 43. The Examiner contends that the present application does not clearly disclose a closed loop feedback system and, therefore, one of ordinary skill in the art would not know how to make and use the invention. The Examiner did admit, that if there was enough guidance in the application to suggest that a closed loop feedback system was being

disclosed, that one of ordinary skill in the art could design the details of the closed loop feedback system to achieve the desired control parameters set forth in the application. Therefore, it comes down to one issue. Does the application contain enough information to suggest to one of ordinary skill in the art to use a closed loop feedback system to control the hydraulic drive apparatus?

It is well settled that patents are not production documents, and that nothing in the patent law requires a patentee to disclose data on how to mass produce the invented product, in patents obtained on either individual parts of the product or on the entire product. CFMT, Inc. v. Yieldup Int'l Corp., 68 U.S.P.Q.2d 1940, 1944 (Fed. Cir. 2003) (citing Christensen v. Colt Industries Operating Corporation, 3 U.S.P.Q.2d 1241, 1254 (Fed. Cir. 1987)). Further, the enablement requirement may be satisfied even though some experimentation is required. U.S. v. Telectronics, Inc., 8 U.S.P.Q.2d at 1223.

It is respectfully submitted that one of ordinary skill in the art, would control the current applied to the electromagnetic relief valve 46 in response to the measured pressure of the working oil supplied from the hydraulic pump 42 and the measured pressure of the working oil for driving and rotating the hydraulic motor 43. The specification is clear, there are two inputs into the control circuit 23B. One, the working oil supplied from the hydraulic pump 42 and two, the pressure of the working oil for driving and rotating the hydraulic motor 43. This is abundantly clear from the specification in several places, as stated above. One of ordinary skill in the art, understanding that the supply pressure is input into the control circuit would also understand that it must be input for some purpose. Here, since the purpose of the invention is to control the supply pressure, one of ordinary skill in the art would at least experiment with using a closed loop feedback system.

The Examiner contends that because it was not known in the prior art to sense the actual pressure downstream from the hydraulic pump, one of ordinary skill in the art would not use this pressure to control the electromagnetic relief valve 46. However, as mentioned above, the fact that the specification expressly states that the pressure at the downstream side of the hydraulic pump 42 is to be input into the control circuit 23B and used to control the electromagnetic relief valve 46, it would suggest to one of ordinary skill in the art to at least experiment with

controlling the current applied to the electromagnetic relief valve 46 to maintain the pressure of the working oil supplied from the hydraulic pump 42 to be higher, by a maximum pressure of 20 kg/cm², than the pressure of the working oil for driving and rotating the hydraulic motor 43. Upon conducting such an experiment, one of ordinary skill in the art would recognize the better performance, as set forth in the charts provided to the Examiner on March 26, 2004. Having concluded the experiment, one of ordinary skill in the art would then begin to make and use the hydraulic drive apparatus using a closed loop feedback system.

As stated above, "the test is not really quantitative, since a considerable amount of experimentation is possible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed." In re Wands, at 1404. Here, the specification provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. That is, the specification clearly states that the pressure of the working oil supplied from the hydraulic pump is fed to the control system which controls the current applied to the electromagnetic relief valve 46 to achieve a higher pressure of the working oil for driving and rotating the hydraulic motor 43. There is no other reason to provide the pressure of the working oil to the control system. Thus, the specification does provide a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. One of ordinary skill in the art, applying the teachings in the specification, would ultimately, after some experimentation, develop the hydraulic circuit with a closed loop feedback system.

It is respectfully submitted that the present application provides an adequate written description of the invention which enables one of ordinary skill in the art, to make and use the invention without undue experimentation. For all of the above reasons, reconsideration and withdrawal of the rejection to the specification under 35 U.S.C. § 112 are respectfully requested.

The Examiner has rejected claims 1-5 and 37-39 under 35 U.S.C. § 101, because the disclosed invention is inoperative and therefore lacks utility. The Examiner contends that there is no indication as to how to use the pump pressure to determine the signal sent to the electromagnetic valve. Applicants respectfully traverse this rejection.

For the same reasons discussed above in connection with the rejection of 35 U.S.C. § 112, first paragraph, one of ordinary skill in the art would understand how the present hydraulic drive apparatus functions and, therefore, the description is not inoperative and has utility. In view of the foregoing, it is respectfully requested that the rejection of claims 1-5 and 37-39 under 35 U.S.C. § 101 be reconsidered and withdrawn.

Applicants bring to the Examiner's attention the fact that an Information Disclosure Statement was filed with the U.S. Patent and Trademark Office on January 8, 2004. It is respectfully requested that the references cited in the Information Disclosure Statement be considered by the Examiner.

In view of the foregoing discussion, it is respectfully submitted that the present application, including claims 1-5 and 37-39, is in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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March 30, 2004 By: Martin G. Belisario
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Enclosure: Petition for 3-Month Extension of Time